John H. Kerr Dam and Reservoir
Virginia and North Carolina (Section 216)
Feasibility Study

10 September 2007
Executive Committee Meeting
Update of Progress

US Army Corps of Engineers®
Wilmington District

John H. Kerr Dam and Reservoir, VA and NC (Section 216)
Feasibility Study Update of Progress
Executive Committee Meeting
10 September 2007

Milestones For Reconnaissance Phase and Feasibility Phase, Stage 1

	Action	Completion Date
✓	905(b) Report approved	May 2001
✓	Sponsors' Advisory Committee formed	November 2001
✓	PMP completed	January 2002
✓	FCSA executed	June 2003
✓	Technical work groups formed/Team leaders assigned	May 2004
✓	Work groups complete Stage 1 Scope of Work (SOW)	March 2004
✓	Begin Stage 1 – Prepare SOW's	April 2004
✓	Work groups complete SOW's for Stage 2 (Except Water Supply)	July 2005
✓	Work groups begin Stage 2 – Data Collection, Studies & Modeling	August 2005
✓	Work groups focus SOW's to minimize cost and time	February 2005
✓	Executive Committee approves cost and schedule for Stage 2 and the overall study	March 2006

Kerr 216 Study Cost Estimate

	Sep 05 Estimate	Mar06 EC Approved	Sep 07 Current
Stage 1	$ 800,000	800,000	$ 780,000
Stage 2	3,500,000	2,200,000	2,200,000
Stage 3	1,000,000	1,000,000	1,100,000
Contingency	0	200,000	270,000
TOTAL COST	$5,300,000	4,200,000	$4,350,000

**The $150,000 increase in estimated cost is for price level changes over two years.

Kerr 216 Study Cost Estimate

Stage 1	$ 780,000
Stage 2	2,200,000
Stage 3	1,100,000
Contingency	270,000
TOTAL COST	$4,350,000

John H. Kerr Dam and Reservoir, VA and NC (Section 216)
Feasibility Study Update of Progress
Executive Committee Meeting
10 September 2007

Feasibility Phase - Stage 1

Work Groups Prepare Scopes of Work

- ✓ Task 8: The water supply scope of work has been prepared and reviewed and is now with the State of North Carolina and the Commonwealth of Virginia for in-house coordination.

- ✓ This completes stage 1 of the study. Stage 1 is financially closed except for stage 1 work-in-kind credits that may be requested by North Carolina and/or V

Costs For Stage 1
Work Groups Prepare Scopes of Work

(Except For Any Remaining Work-In-Kind Credit Requests)

Total Estimated Cost	$780,000
Thru FY 06	761,054
FY 07	18,946
FY 08	0
FY 09	0

John H. Kerr Dam and Reservoir, VA and NC (Section 216)
Feasibility Study Update of Progress
Executive Committee Meeting
10 September 2007

Feasibility Phase - Stage 2
Data Collection, Technical Studies, Modeling

Tasks Work Groups

- ✓ Task 1: Downstream Flow Regime and Effects on Riparian Ecosystem
- ✓ Task 2: Water Quality
- ✓ Task 3: Sedimentation and Channel Morphology
- ✓ Task 4: Reservoir Resources
- ✓ Task 5: Downstream Flow Based Recreation
- ✓ Task 6: Salt Wedge
- ✓ Task 7: Diadromous Fish and Downstream Riverine Aquatic Resources
- ✓ Task 8: Water Supply
- ✓ Task 9: Operating Principles and Administrative Procedures
- ✓ Task 10: Modeling Oversight

Costs For Stage 2
Data Collection, Technical Studies, and Modeling

Total Estimated Cost	$2,200,000
Thru FY 06	518,077
FY 07	674,096
FY 08	936,000
FY 09	71,827

John H. Kerr Dam and Reservoir, VA and NC (Section 216)
Feasibility Study Update of Progress
Executive Committee Meeting
10 September 2007

Task 1: Downstream Flow Regime and Effects on Riparian Ecosystem

(This task is being accomplished by USACE contract, North Carolina contract, The Nature Conservancy, and USGS-Reston)

✓	Flood Model Evaluation and Workshop (Not yet USACE Certified)	Complete
✓	Developing Baseline Information to Evaluate Impacts of Flooding on: Agriculture, Timber Operations, Recreation Lands Road Access, and Structures	Anticipated September 2007 Award to RTI International Complete Contract August
✓	Comprehensive Update of Vegetation and Land-cover	Anticipated Completion October 2007 - TNC Funded
✓	Bottomland Hardwood Productivity & Recruitment Study	Not Initiated yet – Likely USACE will provide funds to USGS, Reston Early Fiscal Year 2008

John H. Kerr Dam and Reservoir, VA and NC (Section 216)
Feasibility Study Update of Progress
Executive Committee Meeting
10 September 2007

Task 1: Downstream Flow Regime and Effects on Riparian Ecosystem

This task is being accomplished by North Carolina contract, The Nature Conservancy, and USGS Reston

Total Estimated Cost	$227,997
Thru FY 06	$32,997
FY 07	0
FY 08	133,000
FY 09	0

John H. Kerr Dam and Reservoir, VA and NC (Section 216)
Feasibility Study Update of Progress
Executive Committee Meeting
10 September 2007

Task 3: Sedimentation and Channel Morphology

✓ Re-level monitoring transects and channels.	Complete
✓ Develop database for results of all quantitative information, begin interpretation.	Complete
✓ Check and reset monitoring transects.	Complete
✓ Measure new mass wasting sites including dendrogeomorphic analyses	Complete
✓ Conduct final bathymetric survey	Complete
✓ Cross check with Dominion study for potential data gaps/needs.	2nd Quarter FY08
✓ Check and reset monitoring transects.	Complete
✓ Calibrate bank stability index	Complete
✓ Final re-level monitoring transects and channels.	Complete
✓ Cooperative data interpretation with Dominion studies.	2nd Quarter FY08
✓ Final data reduction and quantitative analyses.	2nd Quarter FY08
✓ Interpretation of results and integration with Dominion studies.	2nd Quarter FY08
✓ Preparation of final interpretive report.	June FY08
✓ Virginia Tech complete bank erosion model and documentation	2nd Quarter FY 09

(This task is cost shared by Dominion Resources FERC re-licensing and Kerr 216 Study.)

Cliff Hupp, USGS has offered, to the Kerr 216 study, Dominion's FERC re-licensing activities or other interested parties with funds, another year of field data collection and coordination with Virginia Tech at a cost of Approximately $39,000 (field equipment already in place).

No coordination or decision yet on increasing the scope of this study.

Task 3: Sedimentation and Channel Morphology

(Funding provided to USGS-Reston and Virginia Tech for this work)

Total Estimated Cost	$307,941
Thru FY 06	87,346
FY 07	93,796
FY 08	91,799
FY 09	35,000

Task 4: Reservoir Resources

The scope of work for this task, as originally envisioned, addressed a number of items that would be useful to do, but which are not central to the Kerr 216 Study purpose. At the March 2006 EC Meeting the EC determined that once a recommended water management policy is determined, any impacts on issues such as fisheries and lake shore ecosystems should be evaluated during the Stage 3 analysis undertaken to prepare the Environmental Impact Statement for the project. There will be no data collection for this task during Stage 2. Impact analysis will be conducted during Stage 3.

Task 5: Downstream Flow Based Recreation

At the March 2006, EC Meeting the EC agreed downstream flow-based recreation is not a study purpose for the 216 study. Effects of the study recommendations on downstream recreation are expected to be minor. It was agreed that the impacts on downstream flow-based recreation would be reviewed during Stage 3 of the study. Studies should be undertaken only to the extent that they are required for the review of the impacts during the analysis undertaken to prepare the Environmental Impact Statement for the project. A limited amount of mapping and data collection is included in the Stage 2 contract being issued by Work Group 1 to determine other downstream impacts. Impact analysis will be conducted during Stage 3.

Task 6: Salt Wedge

The EC recognized that salt water intrusion at the lower end of the Roanoke River is a complex phenomenon affected by many variables not related to Kerr reservoir operations. Kerr Lake operations are not a major factor, except during droughts, in which case an excellent management and coordination process is already in place. At the March 2006 EC Meeting the EC agreed that additional study expenditures do not need to be made on this task. When study recommendations are developed, any changes recommended in project operations will be reviewed to determine if they affect the salt wedge issue during the analysis undertaken to prepare the Environmental Impact Statement for the project. There will be no data collection for this task during Stage 2. Impact analysis will be conducted during Stage 3.

John H. Kerr Dam and Reservoir, VA and NC (Section 216)
Feasibility Study Update of Progress
Executive Committee Meeting
10 September 2007

Task 7: Diadromous Fish and Downstream Riverine Aquatic Resources

This task is being completed by USACE, North Carolina, Dominion Power using private consultants.

✓ Aerial Videography of Bankside Woody Debris	Video Complete March 2007
✓ Analysis of Videography	Analysis Underway Anticipated Completion 3rd Quarter FY08
✓ Finalize Roanoke River Diadromous Fish Plan	Anticipated Completion 3rd Quarter FY08

Task 7: Diadromous Fish and Riverine Aquatic Resources

(This task is being completed by USACE, North Carolina, Dominion Power, USFWS using private consultants and in-house resources.)

Total Estimated Cost	$129,023
Thru FY 06	7,949
FY 07	9,074
FY 08	112,000
FY 09	0

John H. Kerr Dam and Reservoir, VA and NC (Section 216)
Feasibility Study Update of Progress
Executive Committee Meeting
10 September 2007

Task 8: Water Supply

(This task is being completed by USACE private contractor in FY 08.)

✓ Develop a scope of work to determine the range and expected value of costs per acre-foot for development of water supply storage and dollar per MGD yield.	Complete
✓ Award Water Supply Value Determination Contract	FY 08
✓ Complete Water Supply Value Determination Contract	FY 08

Task 8: Water Supply

Total Estimated Cost	$55,000
Thru FY 06	0
FY 07	0
FY 08	55,000
FY 09	0

John H. Kerr Dam and Reservoir, VA and NC (Section 216)
Feasibility Study Update of Progress
Executive Committee Meeting
10 September 2007

Task 9: Operating Principles and Administrative Procedures

(Contract by NC, VA, and USACE. Flood damages update by USACE and WG 1 contract. Hydropower values update to be determined)

✓ Develop Scope of Work	Complete
✓ USACE Assemble Existing Information	Fall 2007
✓ Award Contract	Spring 2008
✓ Complete Contract	September 2008

Task 9: Operating Principles and Administrative Procedures

(Contract by NC, VA, and USACE. Flood damages update by USACE and WG 1 contract. Hydropower values update to be determined.)

Total Estimated Cost	$59,000
Thru FY 06	0
FY 07	1,000
FY 08	54,000
FY 09	4,000

John H. Kerr Dam and Reservoir, VA and NC (Section 216)
Feasibility Study Update of Progress
Executive Committee Meeting
10 September 2007

Task 10: Modeling Oversight

Review of RRBROM Model	Complete
Scope of Work to Update RRBORM	Complete
Independent Review of Updated RRBROM	Complete
Review of Flood Mapping Model	Complete
Update of Flood Mapping Model	Complete
Independent Review of Updated Flood Mapping Model	Complete
Review of Water Quality Model	Complete
USACE Certification of RRBROM	Fall 2007
USACE Certification of Flood Mapping Model	Fall

Task 10: Modeling Oversight

(RRBROM update by contract with Hydrologics. Model certification by USACE.)

Total Estimated Cost	$105,478
Thru FY 06	90,478
FY 07	0
FY 08	15,000
FY 09	0

John H. Kerr Dam and Reservoir, VA and NC (Section 216)
Feasibility Study Update of Progress
Executive Committee Meeting
10 September 2007

Task 2: Water Quality

Funding provide to the United States Geological Survey to complete this task.

✓ Develop Water-Quality Monitoring Strategy	Complete
✓ Review of Existing Modeling Framework	Complete
✓ Field Monitoring	Anticipated Completion Fall 2007
✓ Hydrodynamic Modeling	Anticipated Completion Fall 2007
✓ Water Quality Modeling	Anticipated Completion Spring 2008
✓ Simulation of Management Scenarios Final Models and Documentation Report	Anticipated Completion June 2008

A More Detailed Report on the Activities of this Work Group will be presented by Jerad Bales

Task 2: Water Quality

(Funding provide to the United States Geological Survey, Raleigh to complete this task)

Total Estimated Cost	$1,086,000
Thru FY 06	265,564
FY 07	506,730
FY 08	313,706
FY 09	0

John H. Kerr Dam and Reservoir, VA and NC (Section 216)
Feasibility Study Update of Progress
Executive Committee Meeting
10 September 2007

Jerad Bales, USGS-Raleigh

Water Quality Data Collection and Modeling Presentation

Feasibility Phase - Stage 3
Plan Formulation and Evaluation

The planning group (Richard, Jim, Bud, Ben plus others
met several times to consider: preliminary plan formula
possible considerations for data collection and model
development; and to test run available models (RRBRC
Flood Mapping Model)

Feasibility Phase - Stage 3
Plan Formulation and Evaluation

Total Estimated Cost	$1,100,000
Thru FY 07	30,000
FY 08	98,000
FY 09	400,000
FY 10	300,000
FY 11	182,000
FY 12	90,000

John H. Kerr Dam and Reservoir, VA and NC (Section 216)
Feasibility Study Update of Progress
Executive Committee Meeting
10 September 2007

Estimated Sponsor Cost Share Requirements

	Total	NC Cash	NC WIK	VA Cash	VA WIK
Total	2,175,000	781,000	611,809	561,000	221,191
Thru FY 06	734,985	435,000	25,809	267,000	7,176
FY 07	273,000	188,000	35,000	50,000	0
FY 08	522,000	47,000	322,000	133,000	20,000
FY 09	300,000	52,500	115,000	52,500	80,000
FY 10	200,000	40,000	60,000	40,000	60,000
FY 11	100,000	14,000	36,000	14,000	36,000

John H. Kerr Dam and Reservoir, VA and NC (Section 216)
Feasibility Study Update of Progress
Executive Committee Meeting
10 September 2007

	Action	Completion Date
✓	Work Groups Complete Stage 2 *(Includes In-house Review and Executive Committee Approval)*	September 2008
✓	Work Groups begin Stage 3 (Plan Formulation and Evaluation)	October 2008
✓	**Independent Technical Review of FSM Read-Ahead Package**	**April 2010**
✓	Work Groups Complete Stage 3, ITR Complete	September 2010
✓	**Independent Technical Review AFB Read-Ahead Package**	**January 2011**
✓	Alternative Formulation Briefing (AFB)	February 2011
✓	**Draft Report to ITR**	**March 2011**
✓	Final Feasibility Report/EIS distributed for Public Review	April 2011
✓	Final Report/EIS Complete and Submitted to Division/Headquarters	August 2011
✓	Feasibility Report/EIS Approved by Division	September 2011
✓	Civil Works Review Board	December 2011

John H. Kerr Dam and Reservoir
Virginia and North Carolina (Section 216)
Feasibility Study

10 September 2007
Executive Committee Meeting
Update of Progress

US Army Corps of Engineers®
Wilmington District